

Title (en)
BORON-CONTAINING DOPANT COMPOSITIONS, SYSTEMS AND METHODS OF USE THEREOF FOR IMPROVING ION BEAM CURRENT AND PERFORMANCE DURING BORON ION IMPLANTATION

Title (de)
BORIONENHALTIGE DOTIERMITTELZUSAMMENSETZUNGEN, SYSTEME UND VERFAHREN ZUR VERWENDUNG DAVON ZUR VERBESSERUNG EINES IONENSTRAHLSTROMS UND DER LEISTUNG WÄHREND EINER BORIONENIMPLANTATION

Title (fr)
COMPOSITIONS DE DOPAGE CONTENANT DU BORE, SYSTÈMES ET PROCÉDÉS D'UTILISATION DE CELLES-CI POUR AMÉLIORER LE COURANT ET LES PERFORMANCES DU FAISCEAU D'IONS PENDANT UNE IMPLANTATION D'IONS DE BORE

Publication
EP 3114699 B1 20201104 (EN)

Application
EP 15709078 A 20150303

Priority
• US 201514635413 A 20150302
• US 201461947064 P 20140303
• US 2015018396 W 20150303

Abstract (en)
[origin: WO2015134430A1] A novel composition, system and method thereof for improving beam current during boron ion implantation are provided. The boron ion implant process involves utilizing B2H6, BF3 and H2 at specific ranges of concentrations. The B2H6 is selected to have an ionization cross-section higher than that of the BF3 at an operating arc voltage of an ion source utilized during generation and implantation of active hydrogen ions species. The hydrogen allows higher levels of B2H6 to be introduced into the BF3 without reduction in F ion scavenging. The active boron ions produce an improved beam current characterized by maintaining or increasing the beam current level without incurring degradation of the ion source when compared to a beam current generated from conventional boron precursor materials.

IPC 8 full level
H01J 37/317 (2006.01); **H01J 37/08** (2006.01); **H01J 37/32** (2006.01)

CPC (source: CN EP KR US)
C01B 3/00 (2013.01 - US); **H01J 27/22** (2013.01 - US); **H01J 37/08** (2013.01 - CN EP US); **H01J 37/3171** (2013.01 - CN EP KR US); **H01J 37/32458** (2013.01 - EP US); **H01J 37/32807** (2013.01 - EP US); **H01J 2237/006** (2013.01 - EP KR US); **H01J 2237/0473** (2013.01 - US); **H01J 2237/08** (2013.01 - CN US); **H01J 2237/0815** (2013.01 - KR US); **H01J 2237/31701** (2013.01 - CN KR US); **H01J 2237/3365** (2013.01 - US); **Y02E 60/32** (2013.01 - EP US)

Designated contracting state (EPC)
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

DOCDB simple family (publication)
WO 2015134430 A1 20150911; WO 2015134430 A8 20161013; CN 106062918 A 20161026; CN 106062918 B 20180921; CN 106935465 A 20170707; CN 109119316 A 20190101; CN 109119316 B 20220208; EP 3114699 A1 20170111; EP 3114699 B1 20201104; JP 2017120755 A 20170706; JP 2017515258 A 20170608; JP 6594888 B2 20191023; KR 102465137 B1 20221110; KR 20160144966 A 20161219; KR 20170078490 A 20170707; SG 10201600291P A 20170728; SG 11201606358X A 20160929; TW 201733901 A 20171001; TW I748939 B 20211211; US 10090133 B2 20181002; US 2015248992 A1 20150903; US 2016133427 A1 20160512; US 2017032941 A1 20170202; US 9548181 B2 20170117; US 9570271 B2 20170214

DOCDB simple family (application)
US 2015018396 W 20150303; CN 201580010132 A 20150303; CN 201610116525 A 20160302; CN 201810954282 A 20150303; EP 15709078 A 20150303; JP 2016041940 A 20160304; JP 2016555326 A 20150303; KR 20160030797 A 20160315; KR 20167023981 A 20150303; SG 10201600291P A 20160114; SG 11201606358X A 20150303; TW 105104473 A 20160216; US 201514635413 A 20150302; US 201514982544 A 20151229; US 201615293367 A 20161014